and the examinations at each of the twelve technical schools for special branches of the metal industries which have been established in Germany.

THE thirty-ninth annual catalogue of the Massachusetts Institute of Technology at Boston gives full particulars of the multitudinous courses of instruction provided and of the complete laboratory accommodation and equipment available for every branch of scientific technology. In addition to the opportunities for advanced study and investigation connected with the Graduate School of Engineering Research, the institute now offers excellent facilities for purely scientific research in all its laboratories. For research work in physical chemistry and sanitary science two new laboratories devoted exclusively to these subjects have been established during the past year. Researches in the research laboratory of physical chemistry are carried on in part by a staff of research assistants and associates and in part by graduate students working under the direction of the professors connected with the subjects of theoretical or physical chemistry. A number of advanced lecture courses are offered by the members of the laboratory staff. By the generosity of an anonymous donor the institute has recently established upon land specially secured for the purpose a sanitary research laboratory and sewage experiment station, provided with facilities for demonstration of the more important methods employed on a large and a small scale for the purification of sewage and water, and in connection therewith well equipped sanitary, chemical, and bacteriological laboratories.

THE Department of Agriculture and Technical Instruction for Ireland has issued, in the miscellaneous series of its *Bulletins*, a report on some features of American education, by Mr. Robert Blair, the assistant secretary in respect of technical instruction to the department. Mr. Blair was a member of the Mosely Education Commission, and part of this report appears in the recent conjoint report of the commission. Some interesting statistics collected by Mr. Blair as to the openings for students trained in American technical institutions are summarised in the report. It appears that in the Westinghouse shops and offices 160 college-bred men are engaged, out of a total of 10,000 employees. At the Carnegie Steel Works, where there are 7000 hands, there were about 100 technically trained men, 7 of the 23 leading officers being college graduates. Of 118 engineers on the staff of the Rapid Transit Railroad Commissioners of New York City, who are constructing a city underground railway, 84 per cent. had been college students; of 75 petty officers, 58 per cent. were college trained. In the Baldwin Locomotive Works, 43; on the Pennsylvania railway lines west of Pittsburg, 52, "nearly all being graduates"; at the Schenectady works of the General Electric Co., 264; the Illinois Central Railroad Co. employ 200 men who are "either graduates of a technical institution or have had some training in that line"; and a similar proportion is true in the case of the employees of the Baltimore and Ohio Railway. Facts such as these are the best proof of the belief of the American people in higher education, and it is to be hoped that British employers of labour will soon follow a similar course. Given suitable openings for qualified technical students in this country, and the increase in the number of students in our colleges would soon be apparent.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, February 18.—"Atmospherical Radio-activity in High Latitudes." By George C. **Simpson**, B.Sc., 1851 Exhibition Scholar, Owens College, Manchester. Communicated by Arthur Schuster, F.R.S.

In 1901 Elster and Geitel discovered a radio-active gas in the earth's atmosphere, and developed a method of detecting it, also an arbitrary standard by which it can be measured. In this paper the author gives the results of a series of measurements carried out on Elster and Geitel's plan at the village of Karasjok, Lapland. The measurements were made three times a day, and continued uninterrupted for four weeks, from November 23 to December 19, 1903, during which time the sun did not rise above the horizon.

The chief result obtained is the very high value which the radio-activity attains, the mean value for the month (A = 102) being nearly six times, and the maximum value (A = 432) nearly seven times greater than the corresponding values found for mid-Germany by Elster and Geitel.

An analysis of the results shows that the means of the morning and afternoon observations are very near one another (87 and 88 respectively), while the mean of those for the evening is very much higher (131), thus showing a daily period.

The effect of the different meteorological elements is fully investigated, but no connection can be detected between the radio-activity and the height of the barometer or the temperature, although the latter extends over the wide range from -35° to $+2\cdot5^\circ$ C. On the contrary, the amount of cloud does appear to have an influence, the radio-activity for no clouds being A = 130, for detached clouds A = 107, for completely overcast sky A = 76. Measurements of the potential gradient, which were made by a self-registering electrometer concurrently with those of the radio-activity, show no direct relation between the two. The aurora also appears to exert no influence on the radio-activity.

These results are of peculiar interest owing to the northerly position of the place of observation (69° 20′ N. and 25° 30′ E.), and will throw some light on the geographical distribution of atmospheric radio-activity. The hard frozen state of the ground, with its covering of snow for more than 100 miles round, are uniform conditions which should help to a proper understanding of the source of the radio-active emanation in the air.

March 10.—"On Electric Resistance Thermometry at the Temperature of Boiling Hydrogen."[1] By Prof. James **Dewar**, M.A., LL.D., F.R.S.

In his Bakerian lecture the author adverted shortly to some results obtained in low temperature resistance thermometry, and gave a table (Roy. Soc. *Proc.*, vol. lxviii. p. 363) of numerical values deduced from experimental observations for some of the more prominent metal resistance thermometers. In the present communication the experimental records of eight additional electric resistance thermometers are given, and the results of the observations on all the resistance thermometers used during the investigations are collected and compared.

Two facts seem to result from this inquiry, viz. (1) that the resistance of an unalloyed metal continually diminishes with temperature and in each case appears to approach to a definite asymptotic value below which no further lowering of the temperature seems to reduce it; and (2) that the parabolic connection between temperature and resistance is no longer tenable at very low temperatures.

Of the different thermometers constructed on the electric resistance principle, fifteen were serviceable throughout the investigations; the others broke or failed from various causes. The metals employed were platinum, gold, silver, copper, palladium, iron, nickel, and two alloys, platinum-rhodium and German silver. Every endeavour was made to attain the highest purity in the samples. In the Bakerian lecture a table (Roy. Soc. *Proc.*, vol. lxviii. p. 363) was given containing the constants of seven of these thermometers, and in the present paper similar results are tabulated for the remaining eight.

The observed resistances, after all corrections were made, were reduced both by Callendar's and by Dickson's methods, and the results are in close accord.

Platinum, gold, silver, and copper show a remarkable agreement between the two methods of reduction. In the platinum and gold groups the centigrade temperature, at which the resistance would vanish, rises with the purity. This is still seen in copper, but something of the reverse appears in the case of silver. However, the general rule is again apparent in palladium.

It is also remarkable that in the cases of all the purest metals examined, their resistances calculated by either method of reduction vanish at temperatures above -273° C. As measurers of temperature gold and silver seem to be the best metals.

As a matter of interest, one line in the table which accompanies the paper records the ratio in which the resistance of each metal at 0° C. is reduced on cooling it to the boiling point of hydrogen. This seems to be a quantity showing no connection with other properties of metals.

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[1] In continuation of Art. 3 of the Bakerian Lecture (Roy. Soc. *Proc.*, vol. lxviii. p. 360.)

While the results obtained may be considered from the point of view of metals as thermometers, yet the question of the general relation between resistance and temperature in metals is of greater importance.

The temperatures at which liquid oxygen and hydrogen boil under atmospheric pressure are known to within one- or two-tenths of a degree, namely, −182°·5 C. and −252°·5 C. Further observations made with the constant-volume hydrogen gas thermometer lead to the conclusion that hydrogen freezes about 5° below its boiling point. In the present experiments the author has been able to get eight observations in liquid hydrogen boiling under pressures varying from 5–50 mm., and the temperatures of these observations may be taken as (say) 4° below the boiling point. If the law connecting resistance with temperature be parabolic, the very gentle curvature at the boiling point of hydrogen will allow the rate of drop in resistance per degree of temperature for the 4° below the boiling point of hydrogen to be considered as roughly the same as that between the boiling points of oxygen and hydrogen (70°), so that the ratio of these two drops on this supposition should be about 4 : 70, or say one-eighteenth.

These ratios all prove to be much smaller than one-eighteenth, hence it is inferred that the curves have taken a more or less quick turn in the neighbourhood of the boiling point of hydrogen, or perhaps above it.

The observed resistances are displayed graphically in the paper, and the curves thus obtained show some instructive peculiarities. The magnetic metals present the most striking curves, being at first sight quite unlike any of the others. But closer inspection shows that this is not so, and in fact they give the clue to the general connection between resistance and temperature in metals. The curves of the other metals are all concave towards the axis of temperature, for the arcs extending from the boiling point of water, through the freezing point, down to the boiling point of oxygen; while below the boiling point of oxygen these curves are convex to this axis. On the other hand, gold and the magnetic metals are already convex to this axis from the boiling point of water to the lowest temperature reached.

It appears that in no case can anything parabolic connect resistances and temperatures ranging from the boiling point of water to that of hydrogen. The two parabolas for high and low temperatures are not only different, but also may differ from each other by any amount, within certain limits depending on the nature of the unknown curve of temperature and resistance.

Entomological Society, March 16.—Prof. E. B. Poulton, F.R.S., president, in the chair.—Mr. G. T. **Porritt** exhibited a pair of *Æschna isosceles,* taken by him with others in the Norfolk Broads last summer. The species had been regarded as almost lost to the British list for many years.—Mr. J. E. **Collin** exhibited *Phora formicarum,* Verr., which is parasitic on the ant *Lasius niger,* obtained by sweeping the herbage in a paddock at Newmarket. These flies belong to the genus Phora and to a hitherto unnamed species which has not been found or recognised by Continental dipterologists. He also exhibited Phora sp. found in a garden at Newmarket, running about at the entrance to the nest of a species of Bombus. Specimens received from Dr. Sharp, labelled "from Bombus nests," are also the same species. It is evident that its life-history is in some way connected with that of the Bombus, but because of the different shape and form of the female ovipositor, it is probably not parasitic on the bee like *P. formicarum* is on the ant, but acts as a scavenger by living on the dead pupæ in the nest.—Commander J. J. **Walker** exhibited a series of Buprestidæ from Sydney, N.S.W., comprising about 120 species, of which 70 belonged to the genus Stigmodera. Also a dried specimen of *Angophora cordifolia,* Cav., a small tree of the natural order Myrtaceæ, the flowers of which are the great attraction in New South Wales for the Buprestidæ, as well as for very many other Coleoptera; specimens of the "bugong" moth, *Agrotis spina,* Guenée, from Jervis Bay, N.S.W. (referred to at the previous meeting); and *Carthaea saturnoides,* Walk., a remarkable moth from Perth, W.A., referred to the Geometrina, but possessing an extraordinary superficial resemblance to a Saturniid.—Mr. A. J. **Chitty** exhibited a specimen of *Peribalus vernalis,* Wolff., a rare bug of which only five or six specimens appear to have been taken, and pointed out that as the records in Saunders's "Hemiptera" included Cumberland and Weston-super-Mare, and his own specimen was taken at Huntingfield, Kent, it was probably overlooked.—Dr. F. A. **Dixey** exhibited a remarkable pale form of *Mamestra brassicae,* taken by Dr. G. B. Longstaff and himself at Morthoe, North Devon, on July 16, 1903.—The president, Prof. Poulton, read some observations on the gregarious hybernation of certain Californian insects, communicated to him by Prof. Vernon L. **Kellog,** of the Leland Stanford Junior University, California. He also read a paper on the hill-top habit of some insects.—Mr. O. E. Janson contributed on behalf of Mr. F. P. **Dodd** a note upon maternal instinct in Rhynchota, and Mr. H. Rowland-Brown read a note on *Oncoptera intricata,* a moth extremely destructive to pastures in Tasmania, by Mr. F. M. **Littler,** of Launceston, Tasmania. He also exhibited examples of the imago and larva of the species, the latter closely resembling that of a Hepialid.

Chemical Society, March 16.—Prof. W. A. Tilden, F.R.S., president, in the chair.—The following papers were read:—Mercuric nitrite and its decomposition by heat: P. C. **Rây.** Mercuric nitrite, obtained by evaporating *in vacuo* the solution left by decomposing mercuric chloride with silver nitrite, occurs in groups of light yellow needles. The solid salt is largely decomposed by water. When heated it decomposes for the most part into mercurous nitrate and nitric oxide.—Note on the higher glycerides: J. B. **Hannay.** The higher glycerides, as represented by purified stearin, olive oil, linseed oil, castor oil, cotton-seed oil, rape oil, and earth-nut oil, are all capable of entering into direct combination with lead oxide, forming new compounds of wax-like consistence and character. In the case of the olein derivative, the composition may be represented by the formula $C_3H_5O_3{:}Pb_3(C_{18}H_{33}O_2)_3$, the three atoms of lead replacing six atoms of hydrogen, three in the alkyl and three in the acyl portion of the molecule.—Isomeric change of diacylanilides into acylaminoketones: transformation of the dibenzoyltoluidines into the isomeric benzoylaminomethylbenzophenones: F. D. **Chattaway** and W. H. **Lewis.**—The action of ethyl β-iodopropionate on ethyl disodioethanetetracarboxylate: O. **Silberrad.**—The heat of formation of glucinum chloride: J. H. **Pollok.** A sample of ground beryl from Limoges was employed in the preparation of pure glucina and ultimately of the metal. On dissolving the latter in hydrochloric acid it was found that the heat of formation of glucinum chloride *in solution* was 199·5 calories, whence that of *anhydrous* glucinum chloride was found to be 155 calories.—A note on the composition of distilled oil of limes and a new sesquiterpene: H. E. **Burgess** and T. H. **Page.** This oil was found to contain *l*-terpineol, an isomeric terpineol of lower boiling point, and a new sesquiterpene, limene.—The nature of a solution of iodine in aqueous potassium iodide: C. H. **Burgess** and D. L. **Chapman.** The authors confirm Jakowkin's statement that in such solutions a dissociable compound KI_3 exists.—The reduction of 2 : 6-dinitrotoluene with hydrogen sulphide: J. B. **Cohen** and J. **Marshall.** In the course of an experiment in which 2 : 6-dinitrotoluene was reduced by hydrogen sulphide in alcoholic ammonia, a quantity of 2-nitro-4-amino-*m*-cresol was obtained, together with 6-nitro-*o*-toluidine.—Acid esters of methylsuccinic acids: W. A. **Bone,** J. J. **Sudborough,** and C. H. G. **Sprankling.** An enumeration of the principal physical constants of these esters is given.—A note on phenyldimethylallylammonium compounds: A. W. **Harvey.**—Estimation of hydrogen peroxide in the presence of potassium persulphate by means of potassium permanganate: J. A. N. **Friend.** It is shown that fairly accurate estimations may be obtained if (1) the time of titration is short, (2) the volume titrated is small, and (3) the concentration of the sulphuric acid is fairly great.—A comparison of the products of the hydrolysis of potato starch with those obtained from cereal starches: J. **O'Sullivan.** It is shown that the products of the hydrolysis of potato starch by diastase bear no quantitative relationship to those yielded by the cereal starches.

Royal Microscopical Society, March 16.—Dr. D. H. Scott, F.R.S., president, in the chair.—Prof. A. E. **Wright** communicated the purport of his paper on some new methods of measuring the magnifying power of the microscope and of lenses generally. His remarks included the description of a piece of apparatus which he had invented for taking the magnifying power of the microscope and for the rapid measurement of microscopic objects. The instrument is placed over the eye-piece without disturbing any of the adjustments of the instrument, and the object on the stage can be instantaneously measured.—A short note by Mr. E. B. **Stringer** on the separation of ultra-violet light was read by the secretary.—Mr. Abraham **Flatters** exhibited on the screen a series of sixty hand painted lantern slides illustrating botanical histology.

Mineralogical Society, March 22.—Prof. H. A. Miers, F.R.S., vice-president, in the chair.—Irregularly developed crystals of zircon (specific gravity 4·0) from Ceylon: L. J. **Spencer.** The crystals were sent recently by Mr. A. K. Coomáraswámy to the British Museum for determination, and at first were thought to be rutile. They are of a dark brown colour and almost opaque; the specific gravity is 4·09, and is unaltered by heating. A section cut perpendicular to the principal axis shows interesting variations in the optical characters, successive portions being isotropic, uniaxial and biaxial; the mean refractive index is about 2·0. After being heated to redness and cooled, the material is bright green in colour, and a crystal section is now entirely biaxial, although the interference figures and birefringence vary in different parts.—Notes on "feather-ore": identity of "domingite" (=" warrenite") with jamesonite: L. J. **Spencer.** "Feather-ore" is usually considered to be a variety of jamesonite, but since the latter has a good cleavage perpendicular to the length of the fibres, only brittle "feather-ore" can be included in this species; on the other hand, "feather-ore," the fibres of which are flexible, may be either stibnite, zinckenite, plumosite ($2PbS.Sb_2S_3$), boulangerite, or meneghinite. "Warrenite" is a brittle "feather-ore," and further has the same chemical formula ($3PbS.2Sb_2S_3$) as that originally given for the cleavable Cornish jamesonite.—Note on the indices of refraction of antimonite: A. **Hutchinson.** A prism, of refracting angle 8° 51′, was found sufficiently transparent to red light for the refractive indices to be determined in the usual way. The results obtained are 4·129 and 3·873 for rays vibrating parallel to the axes of Z and X respectively. Measurements of the deviation of the ultra-red rays indicate high dispersion in this region of the spectrum. The investigation is being continued.—The connection between the atom arrangements of the crystals of certain allied carbon compounds: W. **Barlow.** Using balls of the same relative size as were employed in his previous work, for instance, in models of calcite, the author forms a carboxyl slab. By uniting such slabs with balls representing barium, a structure is obtained which has the symmetry of barium formate. Again, by uniting the slabs with balls representing hydrogen, a structure with the symmetry of oxalic acid is formed. The author showed that in certain cases, in order to effect close packing, a relative shift was necessary between successive layers. He also briefly discussed the tartaric acids.—On the construction and use of the moriogram: G. F. Herbert **Smith.** The moriogram is a diagram devised by the author for the graphical determination of the angles between tautozonal poles, obeying the law of rational indices.—Note relative to the history of the Caperr meteorite: L. **Fletcher,** F.R.S.—On the meteoric irons of Bethany, Lion River, Springbok River and Great Fish River, South Africa: L. **Fletcher,** F.R.S.—Prof. J. W. **Judd,** F.R.S., exhibited two Gardette twins of quartz.

Geological Society, March 23.—Dr. J. E. Marr, F.R.S., president, in the chair.—On the Moine gneisses of the East-Central Highlands and their position in the Highland sequence: G. **Barrow.** Communicated by permission of the director of H.M. Geological Survey. The paper is divided into two parts. The first deals with the parallel-banded grey gneisses or gneissose flagstones of the Perthshire and Aberdeenshire districts, which, in their field characters as well as in their composition and structure, are identical with the Moine gneisses of the North-West Highlands. A description is given of these gneisses, as seen in and about the Garry in Perthshire, and this is followed by a brief account of the same rocks in the ground to the east and north-east, extending to the Forest of Invercauld, north of Braemar in Aberdeenshire. Special attention is directed to the fact that towards the eastern end of the area large masses of highly quartzose gneiss occur, which are really part of the Central-Highland quartzites in what the author conveniently describes as a "Moine-phase," and should not strictly be included in the typical banded grey gneisses at all. In the second part, dealing with the mode of ending off of these gneisses to the south-east, it is shown that they cease to be recognisable as Moine gneisses, owing to the fact that they thin away and also become more finely banded, while at the same time they become less crystalline or cease to be gneisses. To prove this, an account is given of a series of sections lying along a belt 40 miles in length, extending nearly from Blair Athole to the east of Balmoral, in Aberdeenshire.

Royal Astronomical Society, April 8.—Prof. H. H. Turner, F.R.S., president, in the chair.—The secretary read a paper by Mr. H. C. **Plummer** on the optical distortion of the microscopes of the Oxford machine for measuring astronomical photographs. Dr. Russell and Mr. Hinks explained the form of the microscope of the Cambridge measuring machine, and the Astronomer Royal described that which was employed at the Royal Observatory, Greenwich.—Mr. F. A. **Bellamy** read a paper, being an analysis of the results of measurements of the 1180 plates in zones +25° to +31°, allotted to the University Observatory, Oxford, in connection with the International Astrographic Chart.—Mr. Thomas **Lewis** gave an account of his memoir, measures of the double stars in Struve's "Mensuræ Micrometricæ," collected and discussed.—Prof. **Turner** read a paper on the Rousdon variable star observations. In the course of the paper was a consideration of the sun as a variable star. The evidence appeared in favour of the sun being brighter at periods of maximum activity of sun-spots than at minimum.—Sir David **Gill** spoke upon recent work at the Royal Observatory, Cape of Good Hope. He gave an account of an improved spectroscope which the observatory owed to the generosity of Mr. McClean, illustrated by photographs of the instrument and its accessories. He specially described the electrical apparatus by which the spectroscope was kept at a uniform temperature during exposure of the plates. He also showed slides from a series of photographs of the spectra of stars taken with the instrument, with comparison spectra.

Dublin.

Royal Dublin Society, March 15.—Prof. J. A. McClelland in the chair.—Prof. W. F. **Barrett,** F.R.S., read a paper in continuation of his researches, in which he has the co-operation of Mr. W. **Brown** and Mr. R. A. **Hadfield,** on the physical properties of the alloys of iron. The paper, which forms part iv. of the series, deals with (*a*) microstructure, and (*b*) thermal conductivity.—Mr. P. E. **Belas** read a paper on the structure of water-jets, and the effect of sound thereon. The paper was illustrated by photographs.—Mr. J. J. **Hutchinson** described a simple arrangement for determining the maximum pressure of vapours at different temperatures.

Paris.

Academy of Sciences, April 5.—M. Mascart in the chair.—On the pathogenic agent of human trypanosomiasis: M. A. **Laveran.** A comparative study of *Tr. gambiense* of Ford and Dutton, and *Tr. ugandense* of Castellani, showed that grown under similar conditions the two are morphologically identical. The study of the pathogenic action on various animals, the action of human serum and arsenious acid, and the fact that animals rendered immune to the one are also immune to the other, also lead to the same conclusion. The author suggests that the name *sleeping sickness,* since it represents only the terminal phases of the infection, should be abandoned, adopting the name human trypanosomiasis, as applying to all the forms of the disease.—On a necessary condition for the stability of an unlimited vitreous medium: P. **Duhem.**—Observations of the sun, made at the Lyons Observatory with the 16 cm. Brunner equatorial during the fourth quarter of 1903: J. **Guillaume.** The results are summarised in three tables giving the sun-spots, their distribution in latitude, and the distribution of the faculæ in latitude.—On a class of multiform transcendentals: Pierre **Boutroux.**—The polaristrobometrograph, or a self-registering polarimeter: Gaston **Gaillard.** In order to follow the rate of chemical reactions accompanied by a change in the rotatory power, a combination of a Laurent polarimeter and kinematograph was designed, capable of giving from five to ten images per second, details of which are given.—On the satellite rays in the spectrum of cadmium: Ch. **Fabry.** A close examination of the cadmium ray 508·6, by the interference method previously described by the author, shows that in a tube without electrodes there are three rays, very close together, with intensities of the same order. In a tube fitted with electrodes the middle ray is very intense, the second is much enfeebled in intensity, the third being absent. The necessary condition for the clear appearance of the satellite rays is the absolute purity of the luminous gas, this condition being more easily fulfilled in tubes not fitted with electrodes.—On the structure and affinities of trypanoplasma: Louis **Léger.**—On the anomalous values of gravity in the eastern region of Etna: Gaetano **Platania.**—The geological constitution of the *massif* of Khakhadian (Soudan): H. **Arsandaux.** This part of Africa is composed of sedimentary rocks of unknown age, probably old, containing andesite tufas of volcanic origin; they are traversed by eruptive rocks of a varied nature, especially by granite.—On the origin of lactose. Urological researches during pregnancy: Ch. **Porcher** and M. **Commandeur.**—On the origin of precipitines: R. **Kraus** and C. **Levaditi.** The conclusion is drawn that the precipitines are made by the white corpuscles of the blood, the latter being probably the principal source of these anti-bodies.

DIARY OF SOCIETIES.

THURSDAY, April 14.

Royal Institution, at 5.—Dissociation: Prof. Dewar, F.R.S.

Institution of Electrical Engineers, at 8.—Direct Reading Measuring Instruments for Switchboard Use: K. Edgcumbe and F. Punga. (Continuation of discussion.)—Eddy Currents and Eddy Current Losses in Cable Sheaths: M. B. Field.

Mathematical Society, at 5.30.—On a Plane Quintic Curve: Dr. F. Morley.—Mathematical Analysis of Wave-propagation in Isotropic Space of p Dimensions: H. T. Havelock.—On Functions Generated by Linear Difference Equations of the First Order: Rev. E. W. Barnes.—Note in Addition to a Former Paper on Conditionally Convergent Multiple Series: G. H. Hardy.—Spherical Curves. Part II: H. Hilton.—Perpetuant Syzygies of Degree Four: P. W. Wood.—Transformations of the function $F([\alpha]\ [\beta]\ [\gamma]\ x)$: Rev. F. H. Jackson.—An Extension of Sylow's Theorem: Prof. G. A. Miller.—Note on a System of Linear Congruences: Rev. J. Cullen.—The Extension of Neumann's Addition Theorem for Bessel Functions: Rev. F. H. Jackson.

FRIDAY, April 15.

Royal Institution, at 9.—Korea and the Koreans: Rt. Rev. Msgr. the Count Vay de Vaya and Luskod.

Institution of Mechanical Engineers, at 8.—*Discussion*: Compound Locomotives in France: M. Edouard Sauvage.

SATURDAY, April 16.

Essex Field Club, at 6.30 (at the Essex Museum of Natural History, Stratford).—Annual Meeting.—The Natural History of Pyrites and Gypsum, the Chief Minerals of Essex: F. W. Rudler.—On the Origin of the term "Sarsen Stones": T. V. Holmes.

MONDAY, April 18.

Sociological Society, at 5.—Woman in Early Civilisation: Dr. E. Westermarck.

TUESDAY, April 19.

Royal Institution, at 5.—The Transformations of Animals: Prof. L. C. Miall, F.R.S.

Zoological Society, at 8.30.—On Mammals collected during the Uganda Boundary Commission by Mr. W. G. Doggett: Oldfield Thomas, F.R.S., and H. Schwann.—Contributions to the Anatomy of the Lacertilia. II. On some Points in the Structure of Tupinambis: F. E. Beddard, F.R.S.—On the Disposition and Morphology of the Intestinal Coils in Mammals: Dr. P. Chalmers Mitchell.—On the Characters and Affinities of the Triassic Reptile, *Telerpeton elginense*: G. A. Boulenger, F.R.S.—Descriptions of some New Species of Butterflies belonging to the family Erycinidæ from Tropical South America: H. Druce.

Society of Arts, at 8.—The Sentiment of Decoration: A. East.

Royal Statistical Society, at 5.—Five Years' Experience of the Effect of the Workmen's Compensation Acts, with Especial Reference to Schemes Certified Thereunder: W. H. Tozer.

Institution of Civil Engineers, at 8.—Aërial Suspension Cableways: J. M. Henderson.

WEDNESDAY, April 20.

Society of Arts, at 8.—Motor Cars for Popular Use: Mervyn O'Gorman.

Royal Microscopical Society, at 8.—Exhibition of Pond Life.

Entomological Society, at 8.—Nature's Protection of Insect Life, illustrated by Colour Photography: F. Enock.—*Discussion*: On Specimens of the Dipterous Families Stratiomyidæ to Cyrtidæ: G. H. Verrall, Colonel Yerbury, and others.

Royal Meteorological Society, at 7.30.—The Variation of the Population of India compared with the Variation of Rainfall in the Decennium 1891–1901: W. L. Dallas.—The Cause of Autumn Mists: J. B. Cohen.

Chemical Society, at 5.30—(1) The Vapour Density of Hydrazine Hydrate; (2) The Combining Volumes of Carbon Monoxide and Oxygen: A. Scott.—(1) Ammoniacal Double Chromates and Molybdates; (2) Double Chromates of the Series $M'_2M''(CrO_4)_2 6H_2O$ Magnesium and Nickel Compounds: S. H. C. Briggs.—Experiments on the Synthesis of the Terpenes. Part I. Synthesis of Inactive Terpineol, of Dipentene and of Terpin Hydrate: W. H. Perkin, junr.—A Lævorotatory Modification of Quercitol: F. B. Power and F. Tutin.—The Constituents of the Essential Oil of Californian Laurel: F. B. Power and F. H. Lees.—Some Derivatives of Umbellulone: F. H. Lees.

THURSDAY, April 21.

Royal Institution, at 5.—Dissociation: Prof. Dewar, F.R.S.

Linnean Society, at 8.—On British Freshwater Rhizopoda: J. Cash.—*Exhibitions*: Drawings by Mrs. C. Reid of Fruits and Seeds of British pre-Glacial and inter-Glacial Plants. II. Calycifloræ: Clement Reid, F.R.S.—Holograph Letter of Linnæus to Haller, dated from Upsala, May 12, 1747: R. Morton Middleton.

Institution of Civil Engineers, at 8.—"James Forrest" Lecture: Internal Combustion Engines: Dugald Clerk.

FRIDAY, April 22.

Royal Institution, at 9.—Sleeping Sickness in Uganda: Colonel David Bruce, F.R.S.

Physical Society, at 5.—Calculation of Colours for Colour Sensetometers and the Illumination of "Three Colour" Photographic Transparencies by Spectrum Colours: Sir W. de W. Abney, F.R.S.—On Normal Pileing as connected with Osborne Reynolds's Theory of the Universe: Prof. J. D. Everett, F.R.S.—Note on the Diffraction Theory of the Microscope as applied to the Case when the Object is in Motion: Dr. R. T. Glazebrook, F.R.S.

Institution of Civil Engineers, at 8.—No. 2 River-pier of the Beckton Gasworks: A. Trewby.

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